

**TITLE: LOW-NOISE FREQUENCY DIVIDER**

**ABSTRACT OF THE INVENTION**

A multi-modulus divider for producing a low-noise divided output, wherein one  
5 embodiment comprises a low-noise frequency divider comprising a pulse-swallow  
configured divider module and first, second, and third latching blocks. The pulse-swallow  
configured divider module produces a pre-scaled divider output and a divided oscillation.  
The divided oscillation is sequentially latched by the latching blocks, wherein the divided  
oscillation and pre-scaled divider output, coupled as clocks to the latching blocks,  
10 resynchronize the divided oscillation to substantially eliminate noise. An alternate  
embodiment includes a buffer operably coupled to the input of the low-noise frequency  
divider to reduce capacitive loading. The first and second latching blocks are biased by a  
first bias signal and the third latching block is biased by a second bias signal wherein the  
second bias signal is larger than the first bias signal. Each latching block includes an  
15 output load device wherein the impedance of the third latching block is smaller than the  
impedance of the other output load devices. An alternate embodiment comprises a  
plurality of dividers to produce the divided oscillation based on a modulus control signal.